

topic, plants as motives in art is discussed, and such unusual botanical subjects are introduced as plants in tapestries, sculpture, painting and poetry. This last chapter is not without its value, even for botanists, especially nowadays when people are laying so much stress on the interrelationships of all subjects.—HENRY C. COWLES.

MINOR NOTICES.

AN EXCELLENT SERVICE has been rendered the collector of fleshy fungi by Mr. C. G. Lloyd⁸ in the publication of a twenty-two page pamphlet on the American *Volva*. There are included 38 species of *Amanita*, 12 of *Volvaria* and one of *Chitonia*. The necessity for much field study and close, critical work is evident from the author's statement that in the genus *Amanita* there are in this country five common species, nine occasionally found and definitely known, and twenty-four that are either doubtful identifications of European species or only recorded by the discoverer, many being described from dried specimens sent to Europe for that purpose.

The author gives concise diagnostic characters for each species, with many helpful notes, and in another place gives the full description for all species not found in Stevenson's *British Fungi*. The author evidently had in mind the encouragement of inexperienced collectors, and such will find that many of their difficulties have been anticipated; but the omission of the authority for the Latin name seems an unnecessary and inconvenient concession.

One is surprised to learn that the author does not approve of the application of the Rochester rules to cryptogams, and thinks that "it would result in an endless confusion in regard to nomenclature, and retard the study fifty years." In a work intended for assistance in field study, where the most familiar names serve best, it is doubtless only necessary to follow the most prominent authorities; but critical monographic study requires the application of the Rochester or similar rules, if reasonable stability is ever to be attained.—J. C. A.

A LIST of the spermatophytes and pteridophytes of the Upper Susquehanna region has been published by Mr. Willard N. Clute.⁹ This volume "is part of a general plan for an extended study of the flora about the headwaters of the Susquehanna river." It seems that this is the first compilation of the flora of the region, although a number of well-known botanists have been interested in it at various times. The author promises to record subsequent observations in annual supplements, recognizing the fact that the list

⁸LLOYD, C. G.—A compilation of the *Volva* of the United States. 8vo. pp. 22. Cincinnati, 1898. 9 ill. from photographs.

⁹CLUTE, WILLARD NELSON: Flora of the Upper Susquehanna and its tributaries. pp. xix + 142 + x. Binghamton, N. Y.: Willard N. Clute & Co. 1898.

is far from complete. An excellent introduction presents the characteristics of the region, in the way of general topography, geology, rivers and streams, lakes and ponds, bogs and swamps, mountains and ravines, altitudes, temperature and rainfall, and general characteristics of the flora. The present volume enumerates 1105 species, the nomenclature of the "Check list" and the sequence of Gray's "Manual" being used. Common names of the region, notes useful to collectors, and a certain amount of synonymy are given. The region includes several counties in southern New York and northern Pennsylvania, and the taking up of a natural area rather than an artificial one cannot be too strongly commended. The book is well printed, and is admirably adapted to its purpose.—J. M. C.

MR. AVEN NELSON has just published¹⁰ an interesting report on the vegetation of the "Red Desert" region of Wyoming. The area referred to extends "from the Platte bluffs on the east to the Green river bluffs on the west, from the northern limit of Sweetwater county to the hills and mountains separating Colorado and Wyoming." This large area is distinctly and strongly halophytic, and although its investigation had primarily in view the economic problem, the results are of interest to ecologists. During the summer the area is practically uninhabitable, but it has proved to afford excellent winter pasturage. The amount of this winter forage is very large, and is of six kinds: "the salt-sages" (various species of *Atriplex*), "the sage-brushes" (*artemisia*s), "wheat grasses" (species of *Agropyron*) "Indian millet" (*Eriocoma cuspidata*), "giant rye-grass" (*Elymus condensatus*), and "desert juniper" (*J. Knightii*). The much more abundant vegetation of the hill country, or summer range, is also fully described.—J. M. C.

THE FIRST PARTS of Ascherson and Græbner's flora of the North German Lowlands¹¹ have appeared. The work was begun as the flora of the Brandenburg province alone, but the urgent need of a new presentation of the entire flora of the North German plains becoming apparent the authors have undertaken the longer work, which is to be published in periodical fashion. Beginning with the pteridophytes, the three parts already received include the pteridophytes, gymnosperms, monocotyls, and almost all of the Archichlamydeæ. A field handbook for popular use is evidently the aim, and to secure it there has been generous cooperation by the taxonomists of the region. The work is sparsely illustrated, and the fact that very few citations are made, and that the names of authors of species are omitted, is

¹⁰ The Red Desert of Wyoming and its forage resources. U. S. Department of Agriculture, Division of Agrostology, Bulletin 13, Grass and forage plant investigations, 1898.

¹¹ ASCHERSON, P. and GRÆBNER, P.: Flora des Nordostdeutschen Flachlandes (ausser Ostpreussen). Liefg. 1, 2, 3. Small 8vo., pp. 480. Berlin: Gebrüder Borntraeger.

evidence that nothing is intended beyond a current field manual for work of the most general character.—JOHN GAYLORD COULTER.

DR. CARL HOLTERMANN¹² has just published, with the assistance of the Royal Prussian Academy of Science in Berlin, an elaborate account of his mycological studies in Java and Ceylon. The morphology and in many cases life-histories of some forty forms, chiefly Basidiomycetes, are described and illustrated with a dozen fine plates. Two new genera, *Oscarbrefeldia* and *Conidiascus*, and one new species, *Ascoidea saprolegnioides*, are added to the Hemiasci. The author is not willing to follow strictly Brefeld's views in respect to the derivation of the conidium from the sporangium. His studies upon the tropical forms indicate that the two structures may be phylogenetically quite independent of one another. He believes that each has its own *Anlage*, and that the direct influence of external conditions determines the development of one or the other or both upon the same mycelium.—BRADLEY MOORE DAVIS.

PARTS 175 and 176 of Engler and Prantl's *Die natürlichen Pflanzenfamilien* contain the completion of the Umbelliferæ by Drude, and the Cornaceæ by Harms. This completes the Archichlamydeæ, a cause for congratulation among taxonomists. The parts of this great work have been noticed briefly from time to time, as they appeared, and the general purpose and its execution warmly commended. It is certainly an epochal work, and supplies a much needed compact and illustrated presentation of known genera. The breadth of the plan has not been approached by any other "Genera Plantarum." The necessity of bringing together the work of so many collaborators has made the editorial work onerous, and of course there is great unevenness of presentation. It is impossible to criticise such a work in general. The students of different groups must pass judgment upon the work in their particular fields.—J. M. C.

NOTES FOR STUDENTS.

BY GROWING plants of Indian corn from sterilized seeds in sterile nutrient fluid, to which he had added glucose, Laurent has determined that their roots are capable of absorbing organic matter in this form.¹³—C. R. B.

MR. DAVID WHITE¹⁴ has described and figured a new lepidodendroid genus, *Omphalophloios*, from the Lower Coal Measures of Missouri, founded upon the problematic *Lepidodendron cyclostigma* of Lesquereux.—J. M. C.

¹² HOLTERMANN, CARL: Mykologische Untersuchungen aus den Tropen. 4to. pp. viii + 122. *pl.* 12. Berlin: Gebrüder Borntraeger. 1898. *M.* 25.

¹³ Comptes Rendus —: 887. 1897.

¹⁴ Bull. Geol. Soc. Amer. 9: 329-342. *pls.* 20-23. 1898.